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(54) **DEVICES, SYSTEMS, AND METHODS FOR THE FABRICATION OF TISSUE**

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(57) **ABSTRACT**

Described herein are bioprinters comprising: one or more printer heads, wherein a printer head comprises a means for receiving and holding at least one cartridge, and wherein said cartridge comprises contents selected from one or more of: bio-ink and support material; a means for calibrating the position of at least one cartridge; and a means for dispensing the contents of at least one cartridge. Further described herein are methods for fabricating a tissue construct, comprising: a computer module receiving input of a visual representation of a desired tissue construct; a computer module generating a series of commands, wherein the commands are based on the visual representation and are readable by a bioprinter; a computer module providing the series of commands to a bioprinter; and the bioprinter depositing bio-ink and support material according to the commands to form a construct with a defined geometry.